

CLAIMS:

1. A method of processing a data stream through a buffer in accordance with a write clock and read clock, the buffer having a plurality of sequentially numbered storage cells, the method comprising the steps of:

selecting an initial preload value, said step of selecting including determining a product of a maximum frequency offset between a read clock and write clock, and a maximum time between arbitrary symbols in a data stream;

receiving, in the storage cells, data units in response to a write pointer; and

providing data units from the storage cells in response to a read pointer.

2. A method as recited in claim 1, wherein said arbitrary symbols utilized in the determining step comprise ordered sets.

3. A method as recited in claim 1, wherein said selecting step comprises utilizing a maximum time between PCI express skip symbols in the data stream.

4. A method as recited in claim 1, wherein the write pointer and the read pointer each have a counter associated therewith, and wherein the step of determining the relative frequencies of the write and read clocks comprises the steps of:

defining a data interval as data disposed between two arbitrary symbols;

at the end of writing of a first data interval, counting a number of words in the buffer.

5. A method as recited in claim 4, further comprising the step of:

removing arbitrary symbols from the buffer if the number of words in the buffer is greater than an adjusted preload value.

6. A method as recited in claim 4, further comprising the step of:

adding arbitrary symbols to the buffer if the number of words in the buffer is less than an adjusted preload value.

7. A method as recited in claim 5, wherein said removing step comprises deleting the arbitrary symbols from an incoming data stream.

8. A method as recited in claim 6, wherein said step of adding the arbitrary symbols to the buffer comprises a step of inserting skip symbols into the read data stream.

9. A method of compensating for drift between a write pointer and a read pointer processing a continuous data stream through a FIFO buffer, the write and read pointers operating in accordance with a write and read clock, respectively, said method comprising the steps of:

setting a size of a FIFO buffer to include a number of storage cells equal to a product of a maximum frequency offset between a write clock and a read clock and a maximum number of data units in a data interval defined by two arbitrary symbols;

delaying a start of the read pointer, relative to the write pointer, by a portion of the storage cells in the FIFO;

determining if the read pointer is drifting toward or away from the write pointer;

if the read pointer is drifting away from the write pointer, deleting a

selected number of arbitrary symbols from the FIFO buffer such that, at the beginning at a subsequent data interval, the read pointer immediately follows the write pointer; and

if the read pointer is drifting toward the write pointer, adding additional arbitrary symbols to the FIFO buffer such that, at the beginning of a subsequent data interval, the read pointer immediately leads the write pointer in the FIFO buffer.

10. A method as recited in claim 9, wherein said arbitrary symbols comprise ordered sets.

11. A method as recited in claim 9, wherein said arbitrary symbols in said data stream comprise skip symbols.

12. A method as claimed in claim 9, wherein said arbitrary symbols in said data stream comprise PCI express skip symbols.

13. A buffer for allowing influx and outflow of data in a data stream, said buffer comprising:

a write pointer for writing data in accordance with a frequency of a write clock;

a read pointer for reading data in accordance with a frequency of a read clock;

a number of storage cells, said number of storage cells being substantially equal to a product of a maximum frequency offset between the write clock and the read clock, and a maximum number of data units in a data interval between arbitrary symbols in the data stream.

14. A buffer as recited in claim 13, wherein said arbitrary symbols comprise ordered sets.

15. A buffer as recited in claim 13, wherein said arbitrary symbols comprise skip symbols.

16. A buffer as recited in claim 13, wherein said arbitrary symbols comprise PCI express skip symbols.

17. A buffer as recited in claim 13, wherein the data stream comprises a continuous data stream having datagrams embedded therein, and wherein the arbitrary symbols comprise skip symbols disposed within the continuous data stream.

18. A buffer as recited in claim 13, wherein said buffer is configured to allow influx and outflow of data in a data stream, wherein said data stream is a continuous data stream including embedded datagrams having no inter-packet gap.

19. A method as recited in claim 1, wherein said selecting step comprises determining the product of the maximum frequency offset between the read clock and the write clock, and the maximum time between arbitrary symbols in the data stream, wherein the data stream is a continuous data stream including embedded datagrams having no inter-packet gap.

20. A method as recited in claim 9, wherein said step of setting the size of the FIFO buffer comprises including the number of storage cells equal to the product of the maximum frequency offset between the write clock and the read clock and the maximum number of data units in the data interval defined by the two arbitrary symbols, wherein the data interval is part of a continuous data stream including embedded datagrams having no inter-packet gap.